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MDT
Montana Wetland Field Evaluation
Form And Instructions
July 1, 1996



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INTRODUCTION

In 1989, the Montana Department of Transportation (MDT) and the Montana Department of Fish, Wildlife & Parks (FWP) developed a wetland evaluation method to be applied to highway projects in Montana. In 1994, MDT substantially revised the evaluation form. The 1994 form was originally intended to be tested for one or two field seasons, after which it was to be revised according to comments received from its primary users and advances in the techniques used to assess wetlands functions and values. In spring of 1996, Morrison-Maierle Environmental Corporation (MME) was contracted by MDT to revise and prepare instructions for the MDT Wetland Site Evaluation Form.

The 1996 evaluation method discussed in this report was primarily designed to address highway and other linear projects, such as pipelines and transmission lines. However, the method can be applied to other types of projects, including mitigation projects, at the discretion of the user. The U.S. Fish & Wildlife Service (USFWS) requested that the form be titled the Montana Wetland Field Evaluation Form, as it may also be applied to non-highway projects.

It is important to note that this method is intended to *evaluate* wetland functions and values, and is not to be used to *delineate* jurisdictional wetland boundaries. Wetland delineation should be conducted prior to evaluation using the 1987 Corps of Engineers (COE) wetland delineation manual (Environmental Laboratory 1987) or other COE-approved methods.

The objectives of the revised form are to provide a rapid, economical, repeatable wetland evaluation method applicable to Montana that:

- o meets the needs of local regulatory agencies in terms of quantifying jurisdictional wetland functions and values with respect to the majority of proposed wetland disturbance-related and mitigation projects in the state, particularly highway projects;
- o minimizes subjectivity and variability between evaluators;
- o provides a means of assigning wetlands overall ratings; and
- o incorporates some of the principles of the hydrogeomorphic (HGM) assessment method to foster use of the revised form as an interim method until HGM is fully implemented in Montana.

The HGM method for wetland classification and functional assessment is currently under development for use in Montana. Once "up and running", the HGM method will likely be preferred by the COE relative to all types of projects that potentially affect wetlands and require a Section 404 permit. Work is currently underway to develop regional guidebooks for one subclass each of riverine and depressional hydrogeomorphic groups. These guidebooks may be available as early as mid-summer of 1997, but will only apply to one subclass, not all subclasses, of riverine and depressional wetlands, and will likely apply only to the western portion of Montana. Work will continue relative to additional hydrogeomorphic groups, including high elevation slope wetlands, and additional subclasses of riverine and depressional wetlands; however, it is not known when models will be available for all Montana wetlands.



Consequently, MDT proposed to revise the 1994 MDT wetland evaluation form to be used in the interim, starting with the 1996 field season.

METHODS

The 1994 form was distributed to and comments solicited from over 90 members of the Montana Wetland Council that were most likely to be familiar with the form. Comments were solicited from private consultants and numerous agencies/entities including the COE, USFWS, FWP, Environmental Protection Agency (EPA), Federal Highways Administration (FHWA), Montana Department of Environmental Quality (DEQ), Natural Resources Conservation Service (NRCS), MDT, University of Montana, University of North Dakota, Montana Wetland and Riparian Association (MWRA), the U.S. Forest Service (USFS), the Bureau of Land Management (BLM), the Montana Natural Heritage Program (MNHP), and Montana Native American Tribes.

Meetings to discuss possible and proposed revisions were conducted with MDT biologists, the University of Montana, the MWRA, the USFS, private consultants, and the MDT Interagency Wetlands Group which includes representatives of the USFWS, EPA, COE, DEQ, FWP, NRCS, MDT, and FHWA. The form was revised based upon comments received, meeting results, and literature review.

Primary literature sources referenced during the course of the revision included *Oregon Freshwater Wetland Assessment Methodology* (Roth et al. 1993), *Minnesota Routine Assessment Method for Evaluating Wetland Functions* (Minnesota Interagency Wetland Group 1996), *Draft Hydrogeomorphic Assessment of Herbaceous Depressional Wetlands* (Hauer and Cook 1996a), *Draft Hydrogeomorphic Assessment of Riverine Wetlands* (Hauer and Cook 1996b), *An Approach for Assessing Wetland Functions Using Hydrogeomorphic Classification, Reference Wetlands, and Functional Indices* (Smith et al. 1995), *Wetland Evaluation Technique* (Adamus et al. 1991), the *Highway Methodology Workbook* (COE 1995), *Washington State Wetlands Rating System for Eastern Washington* (Washington State Department of Ecology [WDE] 1991), and *Washington State Wetlands Rating System - Western Washington* (WDE 1993). A draft revised form and instructions were distributed to MDT and the remaining members of the MDT Interagency Group; the final form was revised per comments received during the final review.

DISCUSSION AND FORM INSTRUCTIONS

The 1994 form was substantially revised as a result of the review and objectives stated above. A copy of the four-page 1996 Montana Wetland Field Evaluation Form is provided in Appendix A. This section of the report provides discussion and instructions for completing each of the fields on the form.

The COE Regulatory Division must consider impacts to wetland functions and values when evaluating a Section 404 permit application. Functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society, and relate to ecological significance without regard to subjective human values (COE 1995). Groundwater discharge is an example of a wetland function. Values are benefits that derive from either one or more functions and the physical characteristics associated with a wetland (COE 1995). The value of a given wetland function, or combination of functions, is based on human judgement of the worth, merit, importance, or quality attributed to those functions.



The following functions and values are evaluated by this method:

- o Habitat for federally listed, proposed, or candidate threatened or endangered plants or animals
- o Habitat for plants or animals rated S1, S2, or S3 by the Montana Natural Heritage Program
- o General wildlife habitat
- o General fish habitat
- o Flood attenuation and storage
- o Dynamic surface water storage
- o Sediment/nutrient/toxicant retention and removal
- o Sediment/shoreline stabilization
- o Production export/food chain support
- o Groundwater discharge/recharge
- o Uniqueness
- o Recreation/education potential

The form assesses and assigns each of the 12 functions and values ratings of “low”, “moderate”, or “high”, and scores each on a scale of .1 (lowest) to 1 (highest) “functional points”. The scoring scale for each function and value is similar to that of HGM, although HGM does not generally consider values and not all of the variables considered by HGM with respect to a given function were included in this method.

Functional points are summed on the form and expressed as a percentage of the possible total; functions that do not apply to a given wetland are assigned a rank of NA and are not included in point totals. This percentage is then used in conjunction with other criteria to provide an overall wetland ranking into one of four categories. Category I is the highest overall ranking a wetland can receive, followed by Category II, Category III, and Category IV. Functional points are also multiplied by the total acreage in the assessment area (AA) to determine the total “functional units” for a given site. Wetland categories and functional units are further discussed in the latter portion of this section.

When completing fields 15.a through 15.l (the functions and values assessment portion of the form), if it is the evaluator’s best professional opinion that a rating for a particular function is inadequately represented on the form due to specific site conditions, it is appropriate to override the calculated value and note the justification in the comment space provided. It is important to note, however, that this should be treated as the exception rather than the rule.

1. **Project Name:** Enter the appropriate project name.
2. **Project # and Control #:** Enter the appropriate project and control numbers, if applicable.
3. **Evaluation Date:** Enter the date(s) that the field evaluation was conducted.
4. **Evaluator(s):** Enter the names and/or affiliation of the personnel conducting the evaluation.
5. **Wetland/Site #(s):** Enter the wetland identification number and name (e.g., Fish Creek), if applicable.



6. Wetland Location(s): Briefly describe where the wetland is located. Indicate which major Montana watershed basin (Appendix B) contains the site. For highway projects, include highway, milepost, and county.

7. Evaluation Purpose: Check the appropriate project category.

8. Estimated Total Wetland Size: Enter the estimated size of the entire wetland that includes the assessment area (AA). If the AA is delineated such that the entire wetland is included, the responses to 8 and 9 will be the same.

9. Estimated Acreage of Assessment Area (AA): Indicate the estimated acreage as well as the boundaries of the AA using the guidance below. If splitting a wetland into more than one AA, indicate the AA boundaries on the wetland delineation map. Wetlands bisected by roads may be considered as a single AA or as more than one AA, depending on the perceived degree of hydrologic/biological interaction between the two halves.

The AA includes the portion of the wetland and other associated waters of the U.S. that are:

- A. within a proposed project right-of-way, construction easement, permit area, known detour area, etc. (e.g., within the area of interest) and
- B. contiguous to a physical point of significant hydrologic change (these can include jurisdictional boundaries, points where jurisdictional wetlands are no longer adjacent to a non-wetland channel, natural [geomorphic] or man made constrictions or expansions, points where the gradient changes rapidly, points of significant inflow [e.g., tributaries], or places where other factors limit hydrologic interaction; if the wetland contains points of significant hydrologic change, it is appropriate to evaluate it in separate AAs). or
- C. contiguous to a distance of 0.5 miles from the proposed project, whichever of B or C is closer to the proposed project.

The following conditions apply to wetlands contiguous with open water. Open water is defined as *any area of standing or flowing water without emergent (not including pioneer species), scrub-shrub, or forested vegetation (e.g., in most cases, a flooded wet meadow would not be considered to contain open water)*.

Where wetlands are contiguous with standing non-wetland water bodies (lakes, ponds):

If wetlands are contiguous with < 20 acres of open water (e.g., prairie pothole), include all open water in AA to a distance from the project determined by A, B, and C above.

If wetlands are contiguous with > 20 acres of open water (e.g., Flathead Lake), include open water in the AA to the estimated deep water line (>6.6 feet) or to a point that is double the wetland shoreline width, whichever is greater.



Where wetlands are contiguous with flowing non-wetland water bodies (rivers, streams, irrigation canals):

For fringe wetlands (cumulative width $< 3 \times$ bankfull channel width) adjacent to a channel or multiple channels with a cumulative bankfull width ≥ 150 feet (e.g., Missouri River), include open water in the AA to the deepest point in the channel or to a point that is double the wetland width, whichever is greater, to a distance from the project determined by A, B, and C.

For all nonfringe wetlands (cumulative width $\geq 3 \times$ bankfull channel width) or those fringe wetlands adjacent to a channel or multiple channels with a cumulative bankfull width < 150 feet (e.g., Little Blackfoot River), include entire channel in the AA to a distance from the project determined by A, B, and C.

10. Classification of AA. Enter the HGM class(es) (Smith et al. 1995) pertaining to the AA in column 1. HGM classes applicable to Montana are riverine, depressional, slope, mineral soil flats, organic soil flats, and lacustrine fringe. A key to these classes is provided in Appendix C. Class descriptions are provided in Smith et al. (1995).

For columns 2-6, enter the systems, subsystems, classes, water regimes, and special modifiers that apply to the AA using the Cowardin et al. (1979) classification system. Only the riverine, lacustrine, and palustrine systems apply to Montana. A classification hierarchy showing systems, subsystems, and classes from Cowardin et al. (1979) is included in Appendix C.

For column 7, enter the estimated percentage of the AA that corresponds to each Cowardin class. For purposes of simplification, it is appropriate to substitute the term "open water" for the rock bottom and unconsolidated bottom classes and "unvegetated" for the rocky shore and unconsolidated shore classes within any of the systems.

Vegetated classes are distinguished on the basis of what species constitute the uppermost layer of vegetation and cover more than 30% of the substrate (Cowardin et al. 1979). For example, an area with 50% areal coverage of trees over a shrub layer with 60% areal coverage would be classified as a forested wetland; an area with 20% areal coverage of trees over a shrub layer with 60% areal coverage would be classified as scrub-shrub wetland. When trees or shrubs alone cover less than 30% of an area but in combination cover 30% or more, the wetland is classified as scrub-shrub. When trees and shrubs cover less than 30% of an area but the total vegetative cover is 30% or greater, the wetland is assigned to the appropriate class for the predominant life form (e.g., emergent) below the shrub layer. The vegetated classes likely to be encountered are defined below:

Aquatic bed class: Any areas of open water dominated by plants that grow principally on or below the water surface for most of the growing season. Vegetation is non-persistent and includes submerged or floating-leaved rooted vascular plants, free-floating vascular plants, submergent mosses, and algae.

Emergent class: Vegetated wetland characterized by erect, herbaceous hydrophytes (e.g., sedges,



rushes, grasses, bulrush, cattail), excluding mosses and lichens.

Scrub-shrub class: Vegetated wetland dominated by woody vegetation less than 6m (20 ft) tall. Species include shrubs, young trees, and stunted trees and shrubs.

Forested class: Vegetated wetland characterized by woody vegetation that is 6m (20 ft) tall or taller.

Moss-lichen class: Wetland where mosses or lichens cover substrates other than rock and where emergents, shrubs, or trees make up less than 30% of areal cover.

11. Estimated Relative Abundance of Similarly Classified Sites within Major Montana Watershed Basin.

Circle the estimated relative abundance of sites that are similar in composition to the AA and occur within the same major Montana watershed basin (Appendix A) using the following definitions:

<i>Rare</i>	estimated < 10% of wetlands in basin similar to AA
<i>Common</i>	estimated 10-50% of wetlands in basin similar to AA
<i>Abundant</i>	estimated >50% of wetlands in basin similar to AA

The Major Montana Watershed Basin Map is based on a modification of the 1974 United States Geological Survey Hydrologic Unit Map for Montana, and is used by the MDT Interagency Wetlands Group to determine the suitability of mitigation project locations relative to impact locations.

12. General Condition. Circle the term that best corresponds to the condition of the AA using the definitions and examples listed below. Many wetlands that occur immediately adjacent to or are bisected by an existing road/highway will be classified as "encroached upon" or "directly disturbed", depending on whether or not the evaluator elects to split a bisected wetland into more than one AA (see # 9).

<i>Undisturbed:</i>	Wetland is in virtually pristine condition; no significant sources of human disturbance occur within or immediately adjacent to the site; undisturbed habitat is contiguous with site (e.g., pothole on native prairie).
<i>Encroached Upon:</i>	Human disturbance has encroached upon the wetland, but very minimal or no direct disturbance has resulted (e.g., pothole on agricultural land [converted prairie] that has been tilled to the wetland edge, wetland with road constructed along one edge).
<i>Directly Disturbed:</i>	Wetland has been more than minimally directly disturbed by human activity; significant clearing, filling, conversion has occurred (e.g., farmed/tilled prairie pothole, wetland bisected by road construction).

13. Habitat Diversity. Determine the habitat diversity rating for the AA by multiplying the appropriate point values as indicated on the form. For variable A, count only those classes that are persistently



vegetated; do not include unvegetated or aquatic bed classes. For variable B, use the definition for open water presented above under #9 and also include the aquatic bed class. Rate the habitat diversity based on the "best case" for a given wetland. For example, if open water is not present during the evaluation, but the reviewer knows or strongly suspects that open water is present during some portion of the year (e.g., prairie pothole) and meets the definition of open water provided, open water should be indicated as present.

14. Brief Descriptive Summary of AA and Surrounding Land Use. Provide a brief description of the AA and surrounding area. The description may include dominant species, adjacent land use, proximity to other wetlands, etc.

15.a) Habitat for Federally Listed, Proposed, or Candidate Threatened or Endangered Plants or Animals.

This field assesses listed, proposed, or candidate threatened or endangered species use of the AA. Circle D or S to indicate whether use of the AA is documented or suspected at the ascertained level using the definitions provided below. It may be appropriate to indicate more than one use level for multiple species. For example, an AA may be regularly used by bald eagles and incidentally used by peregrine falcons. List the species that correspond to each use level that is determined to apply to the AA. Use the highest level use (e.g., the level that corresponds to the highest functional point value) to determine the functional point value for the AA. If T&E species use is documented at the AA, indicate the source of the documentation.

Regular use: AA is consistently, normally used by a given species or habitat conditions and the known distribution of the species would indicate this level of use. The presence of traditional breeding, nesting, denning, foraging, or seasonal habitat in the AA constitutes regular use, as does any occurrence of a T&E plant.

Occasional use: AA is inconsistently, infrequently, sporadically used by a given species or habitat conditions and the known distribution of the species would indicate this level of use. Traditional breeding, nesting, denning, foraging, or seasonal habitat may occur in the general vicinity (e.g., watershed), but not in the AA.

Incidental use: AA receives chance, inconsequential use by a given species or habitat conditions or the known distribution of the species would indicate this level of use. This term implies that, while it may be conceivable that a given species may occur at an AA at a given point in time, the chance is remote and the use is not likely to be repeated.

Lists of threatened and endangered species and candidates for listing under the Endangered Species Act in Montana are presented by county in Appendix D.

15.b) Habitat for Plants or Animals Rated S1, S2, or S3 by the Montana Natural Heritage Program. This field assesses use of the AA by species rated S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable) by the Montana Natural Heritage Program (not including "watch list" species). *To avoid duplication, do not include species listed above under 15.a).* Circle D or S to indicate whether use of the



AA is documented or suspected at the ascertained level using the definitions provided above under 15.a). As discussed under 15.a), it may be appropriate to indicate more than one use level for multiple species. List the species that correspond to each use level applying to the AA. Use the highest level use (e.g., the level that corresponds to the highest functional point value) to determine the functional point value for the AA. If sensitive species use is documented at the AA, indicate the source of the documentation.

Lists of plants and animals rated S1, S2, and S3 by the MNHP that may be associated with wetlands in Montana are presented in Appendix D.

15.c) General Wildlife Habitat. This field assesses general wildlife habitat potential of the AA based upon perceived use by aquatic, semi-aquatic, and non-aquatic wildlife groups and habitat diversity. First, indicate whether the AA is known or suspected to receive substantial, moderate, or little to no use by the listed wildlife groups using the following definitions:

Substantial use: AA is regularly used in significant numbers relative to local or transient populations; includes regular seasonal use, such as migration stopovers and wintering.

Moderate use: AA is regularly used in small numbers relative to local populations, or infrequently or sporadically used in any numbers relative to local or transient populations.

Little to No use: AA is regularly, infrequently, or sporadically used by extremely small numbers relative to local populations, or receives chance, inconsequential use in any numbers relative to local or transient populations.

Aquatic/semi-aquatic wildlife: Species that depend primarily or solely on wetland habitats for breeding, nesting, feeding, or other critical life cycle components. Examples include waterfowl, shorebirds, bald eagle, osprey, muskrat, mink, river otter, beaver, and painted turtle.

Non-aquatic wildlife: Species that may use wetland habitats, but are not primarily or solely dependent on them for breeding, nesting, feeding or other critical life cycle components. Examples include American robin, red-tailed hawk, common yellowthroat, striped skunk, white-tailed deer, white-footed deer mouse, and smooth green snake.

Determine the general wildlife habitat rating for the AA by multiplying the appropriate point values as indicated on the form. For variable ii, use the habitat diversity rating determined under #13.

D. General Fish Habitat. This field assesses general fish use of the AA based upon the known or suspected presence of native or introduced fish and the duration of surface water. The term "native" implies a species indigenous to Montana; not necessarily to a given drainage or water body. If the AA is not surficially connected to a fish-bearing stream or standing water body (e.g., does not have the opportunity to provide habitat for fish), circle NA on the form and proceed to the next function. The term



“surficially connected” also includes connections via culverts.

If the AA is surficially connected to a fish-bearing stream or standing water body, first indicate whether the AA is known or suspected to contain native fish, followed by introduced game fish, introduced non-game fish, or no fish. The evaluator is referred to *A Field Guide To Montana Fishes* (Holton 1990) for the status (native vs. introduced) of fish species known or suspected to occur in the AA. Secondly, indicate the longest duration of surface water in the AA using the following definitions:

Permanent/perennial: Surface water is present throughout the year except during years of extreme drought.

Seasonal/intermittent: Surface water is present for extended periods, especially early in the growing season, or may persist throughout the growing season, but may be absent at the end of the growing season; or surface water does not flow continuously, as when water losses from evaporation or seepage exceed the available streamflow.

Temporary/ephemeral: Surface water is present for brief periods during the growing season, but the water table is well below the surface most of the year; or surface water flows briefly in direct response to precipitation in the immediate vicinity and the channel is above the water table.

Determine the general fish habitat rating for the AA by multiplying the appropriate point values as indicated on the form.

E. Flood Attenuation and Storage. This field assesses the capability of jurisdictional wetland in the AA to detain moving water from in-channel flow or overbank flow for a short duration when the flow is outside of its channel. This parameter applies only if the AA occurs within or contains a discernable floodplain (e.g., is subject to flooding and possesses the opportunity to attenuate and store flood waters), based on floodwater proximity, evidence of flood deposits, FEMA maps, etc., and can apply to any AA that includes a flowing water/channel component (e.g., rivers, streams, flowing ditches). If jurisdictional wetland within the AA does not occur within a channel or discernable floodplain, circle NA and proceed to the next function.

First, estimate the area of *jurisdictional wetland* that is subject to periodic flooding within the AA. This can be based on aerial photos, water marks, silt lines, alternating layers of leaves and fine sediment, ice scars, drift lines, sediment deposition, directionally bent vegetation, or other physical evidence. Do not include non-wetland open water channel in this estimate. Next, determine the approximate percentage of jurisdictional wetland subject to flooding that is classified in the forested or scrub-shrub class (*note: in some cases it may be appropriate to consider dense, extensive stands of hardy persistent emergent vegetation, such as cattail, as scrub-shrub for purposes of this form, as these stands act as primary floodwater attenuators in some parts of the state. If this situation applies, note in the comments section*). Finally, determine whether or not the wetland contains a restricted outlet.

Determine the flood attenuation and storage rating for the AA by multiplying and adding the appropriate point values as indicated on the form. If there are residences, businesses, or other features (parks, sports



fields, historic sites, etc.) that could be damaged by floodwaters located within 0.5 mile downstream of the AA, list under (iv).

F. Sediment/Nutrient/Toxicant Retention and Removal. This field assesses the ability of the AA to retain sediments and retain and remove nutrients and toxicants. The assessment is based on the site's proximity to sediment/nutrient/toxicant sources; transport potential of these constituents to the AA via surface water; potential for the site to detain the constituents; and potential of the site to filter and/or process (uptake) the constituents. Circle the appropriate responses and assign the corresponding rating and functional points as indicated on the form.

G. Sediment/Shoreline Stabilization. This field assesses the ability of the AA to dissipate flow or wave energy, reducing erosion. Complete this field only if the jurisdictional wetland within the AA occurs on the banks of a river, stream, or other natural or manmade channel, or occurs on the shoreline of a standing water body which has a maximum depth exceeding 6.6 feet at low water (e.g., subject to wave action; Cowardin 1979). If this field does not apply, circle NA and proceed to the next function.

Estimate the total percent cover of the rooted vegetative component (all rooted classes) and circle the appropriate points. Determine the longest duration of surface water *adjacent to rooted vegetation* in the AA using the definitions provided above under #15.d). Determine the sediment/shoreline stabilization rating for the AA by multiplying the appropriate point values as indicated on the form.

H. Production Export/Food Chain Support. This field assesses the potential of the AA to produce and export food/nutrients for living organisms. Estimate the acreage of the vegetated component (all vegetation including persistent, non-persistent, rooted, and floating) within the AA. For variable (ii), use the habitat diversity rating determined under #13. Determine the longest duration of surface water in the AA using the definitions provided above under #15.d). Determine the production export/food chain support rating for the AA by multiplying and adding the appropriate point values as indicated on the form.

I. Groundwater Discharge/Recharge. This field assesses groundwater discharge and recharge potential at the site. Check the listed statements under Discharge and Recharge that apply to the AA. Other site-specific indicators may be added as necessary. Follow the criteria on the form to determine the corresponding rating and functional points. If it is determined that groundwater discharge/recharge potential cannot be reasonably ascertained in the AA at this level of analysis, explain in the comments section and indicate rating as "unknown" and functional points as "NA" on the form.

J. Uniqueness. This field expresses the general uniqueness of the AA in terms of the relative abundance of similar sites occurring in the same major Montana watershed basin; the replacement potential and habitat diversity of the AA; and the degree of human disturbance in the AA. Although not currently available, the MNHP is proposing to eventually develop a list of rare wetland community types for the state (Genter pers. comm.). When developed, the list may be used in conjunction with this field in consideration of overall uniqueness.

Circle the estimated occurrence frequency of similarly classified sites within the same major Montana watershed basin using the answer from #11. Determine whether the AA is or contains a bog, fen, warm



springs, or mature forested wetland (average age of dominant trees is greater than 80 years). When determining if the wetland is/contains mature forested wetland, take care to ensure that non-jurisdictional riparian area is not counted as wetland.

If the AA does not contain any of these four wetland types, use the habitat diversity rating determined under #13. Circle the condition of the site using the answer from #12. Determine the uniqueness rating for the AA by multiplying and adding the appropriate point values as indicated on the form.

Bog: A peat-accumulating wetland that has no significant inflows or outflows and supports acidophilic mosses, particularly sphagnum (Mitch and Gosselink 1993).

Fen: A peat-accumulating wetland that receives some drainage from surrounding mineral soil and usually supports marsh-like vegetation (Mitch and Gosselink 1993).

Forested Wetland: See discussion and definition under #10, Classification of AA.

K. Recreation/Education Potential. This field assesses the potential of the AA to support recreational and/or educational activities. If the AA is a known recreation or education site, assign a high rating and indicate which types of activities occur on the site. If the site is not a known recreation/education site and provides little potential for such use, assign a low rating (functional point value of .1).

If the AA has potential to be used as a recreation/education site, indicate which types of activities may occur and circle the condition of the AA using the answer from #12. Determine the rating for the AA by multiplying the appropriate point values as indicated on the form.

L. Dynamic Surface Water Storage. This field assesses the potential of the AA to capture water from precipitation, upland surface (sheetflow) or subsurface (groundwater) flow. If jurisdictional wetlands in the AA are not subject to flooding or are flooded exclusively by in-channel or overbank flow (see 15.e), circle NA here and proceed with the evaluation.

First, estimate the area of *jurisdictional wetland* that is subject to periodic flooding within the AA. This can be based on aerial photos, water marks, other physical evidence. Next, estimate (based on photographs, NRCS data, interviews, knowledge of the area, etc.) whether the jurisdictional wetlands that flood do so at a frequency greater than or less than 5 out of every 10 years. Determine the dynamic surface water storage rating for the AA by multiplying and adding the appropriate point values as indicated on the form.

Function & Value Summary and Overall Rating. Transfer the ratings and functional points assigned for each of the 12 functions and values on pages F1, F2, and F3 to the appropriate fields in the summary form (F4). Record values of 1 under the Possible Functional Points column for functions that apply to the AA but for which no default values appear on the form. For functions that do not apply to a given AA (e.g., flood attenuation and storage), enter "NA" under each of the column headings.

Calculate the functional units for each function by multiplying the actual functional points by the



estimated acreage in the AA (from #9).

Record the totals from the Actual Functional Points, Possible Functional Points, and Functional Units columns in the Totals row. Calculate the percentage of the possible functional points that the AA achieved using the following equation: $\% \text{ of possible} = \text{total actual functional points} \div \text{total possible functional points} \times 100$

Determine the appropriate overall rating (described below) based on the criteria indicated on the form.

Category I wetlands are of exceptionally high quality and are generally rare to uncommon in the state. Category I wetlands can provide habitat for federally listed threatened, endangered, or candidate species, represent a high quality example of a rare wetland type, provide irreplaceable ecological functions (e.g., are not replaceable within a human lifetime, if at all), exhibit exceptionally high flood attenuation and storage capability, or are assigned high ratings for most of the assessed functions and values. To be rated as a Category I site, the AA must:

- o Score .9 or 1 functional point for Threatened or Endangered Species (e.g., receives documented regular or occasional use); or
- o Score .9 or 1 functional point for Uniqueness (e.g., be rare in the USGS Unit and a bog, fen, warm springs or mature forested wetland and undisturbed or encroached upon) or "High" rating for Uniqueness and Condition (#12) is "Undisturbed" (e.g., be an undisturbed site that is rare with high to exceptional habitat diversity or common but irreplaceable); or
- o Score 1 functional point for Flood Attenuation and Storage and answer to Question 14.E.3 is "yes" (e.g., is greater than or equal to 10 acres and is comprised of more than 75% woody vegetation and has a restricted outlet and there is potential for flood damage downstream); or
- o Total actual functional points > 80% (round to nearest tenth) of total possible functional points.

Category II wetlands are more common than Category I wetlands, and are those that provide habitat for sensitive plants or animals, function at very high levels for wildlife/fish habitat, are unique in a given region, or are assigned high ratings for many of the assessed functions and values. To be rated as a Category II site, the AA must not qualify as a Category I site and:

- o Score 1 functional point for Species Rated S1, S2, or S3 by the Montana Natural Heritage Program (e.g., receives documented regular use); or
- o Score 1 functional point for General Wildlife Habitat (e.g., assessed use is high and habitat diversity is exceptional); or
- o Achieve "High" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or
- o Achieve a "High" rating for Uniqueness (e.g., disturbed site that is rare with high to exceptional habitat diversity or common but irreplaceable or
- o Total actual functional points > 65% (round to nearest tenth) of total possible functional points.

Category III wetlands are more common, generally less diverse, and often smaller and more isolated than are Category I and II wetlands. They can provide many functions and values, although they may not be assigned high ratings for as many parameters as are Category I and II wetlands. To be rated as a Category III site, the AA must not qualify as a Category I, II, or IV site.



Category IV wetlands are generally small, isolated, and lack vegetative diversity. These sites provide little in the way of wildlife habitat, and are often disturbed or occur immediately adjacent to disturbance. To be rated as a Category IV site, the AA must not qualify as a Category I, II, or III site and:

- o Achieve a "Low" rating for Uniqueness ; and
- o Achieve a "Low" rating for Production Export/Food Chain Support (e.g., less than one acre in size and low to moderate habitat diversity); and
- o Total actual functional points < 30% (round to nearest tenth) of total possible functional points

The overall rating can be used to establish wetland avoidance/protection strategies at the project level. For example, if wetland impacts are unavoidable for a given project, and alternatives are available such that a choice can be made between affecting a Category I or a Category III site, the applicant and reviewing agencies could direct impacts to the Category III site. Other applications of the overall rating concept may include the eventual development of mitigation ratio policy (e.g., mitigate impacts to Category I sites at a 2:1 ratio, Category II sites at a 1.5:1 ratio, Category III sites at a 1:1 ratio, and Category IV sites at a 0.5:1 ratio). Compensatory wetland mitigation guidelines for Montana are being developed by an interagency team as part of the local procedures that will provide guidance for the establishment, use, and operation of mitigation banks in Montana (Hazelwood pers. comm.).

Functional units are not used in determining the overall rating, but are provided for the evaluator's consideration in assessing project impacts, mitigation needs, or in assessing mitigation plans or the success of constructed projects. An example of how functional units could be used to develop mitigation that would replace overall (cumulative) functions and values for a given project is presented below.

The total actual functional points for a given 8-acre AA is 6.3. Total functional units for the AA would be calculated by multiplying 6.3 points x 8 acres = 50.4 functional units. A proposed highway project would impact 2 acres of the AA. Assuming a relatively uniform distribution of functional capacity across the AA, the loss in functional units to the AA would be 2 acres x 6.3 points = 12.6 functional units. To compensate for lost wetland functions and values, mitigation would need to be designed that would replace the functional units. If the predicted total actual functional points for a mitigation project was 5.1, and the goal were to replace 12.6 functional units, the applicant would need at least 2.5 acres of mitigation to compensate for the loss ($2.5 \times 5.1 = 12.6$). If limited to a two-acre mitigation site, the applicant could design the mitigation project such that the predicted functional points met or exceeded 6.3, resulting in the replacement of at least 12.6 functional units ($2 \times 6.3 = 12.6$), or could obtain an additional site such that the sum of the functional units for the two sites met the total 12.6 point replacement requirement.

If the 8-acre AA was classified as a Category II wetland, and mitigation policy dictated that Category II functional units be replaced at a 1.5:1 ratio, then the functional units that would need to be replaced would be $12.6 \times 1.5 = 18.9$. This would require the applicant to increase the acreage of his/her originally-proposed mitigation project to 3.7 acres ($18.9 \div 5.1$) or to alter the design, if possible, such that the predicted functional points for the site were increased to reach the 18.9 functional unit requirement.

Functional Units can also be examined on a function by function basis to compare existing pre-project



conditions with predicted post-project conditions. This concept is employed by the HGM method (Smith et al. 1995), and is illustrated by the following table, which assumes a two-acre impact to a 10-acre AA for a hypothetical project.

Function/ Value	Pre-project			Post-Project			
	Functional Points	Size of AA in Acres	Functional Units	Functional Points	Size of AA in Acres	Functional Units	Change in Functional Units
A	.8	10	8	.4	8	3.2	- 4.8
B	1	10	10	.6	8	4.8	- 5.2

There are several possible ways to determine mitigation needs using this approach, including:

- o designing mitigation for individual functions or cumulatively for all functions using the **greatest** predicted loss in functional units as the replacement target (*in this case, designing mitigation such that each function provides a minimum 5.2 functional units or, designing the mitigation such that, cumulatively, $5.2 + 5.2 = 10.4$ functional units are replaced*); or
- o designing mitigation for individual functions or cumulatively for all functions using the **average** predicted loss in functional units as the replacement target (*in this case, designing mitigation such that each function provides a minimum 5 functional units [$(4.8 + 5.2) \div 2 = 5$] or designing the mitigation such that, cumulatively, $5 + 5 = 10$ functional units are replaced*); or
- o designing mitigation for individual functions or cumulatively for all functions using **individual** predicted changes in functional units as the target (*in this case, 4.8 for function A and 5.2 for function B, or cumulatively using $4.8 + 5.2 = 10$ functional units*).

There may be circumstances that simply preclude the replacement of a given function/value parameter at the same level at which it is rated for an affected wetland. For example, if a project impacts a wetland rated "high" for uniqueness due to the presence of a bog, it is very unlikely that the uniqueness parameter could be mitigated at the same level at a replacement wetland because there is no known method for bog replacement. In virtually all cases, appropriate mitigation of lost wetland functions and values will be subject to coordination/negotiation with the regulatory agencies involved in the project.

It is not the purpose of this evaluation form to dictate wetland mitigation policy. What is and is not considered appropriate mitigation will ultimately be determined by the regulatory agencies; primarily the COE and EPA. While this evaluation method does provide a means for quantifying predicted impacts to wetland functions and values, it is important to stress that coordination with the regulatory agencies as to the application of this evaluation method and discussed mitigation determination strategies to a given project is crucial and needs to be carried out on a project by project basis.



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GLOSSARY

<i>Abundant:</i>	An estimated 50% or more of wetlands in the same Major Montana Watershed Basin are similar in composition to the AA.
<i>Aquatic wetland bed class:</i>	Any areas of open water dominated by plants that grow principally on or below the water surface for most of the growing season. Vegetation is non-persistent and includes submerged or floating-leaved rooted vascular plants, free-floating vascular plants, submergent mosses, and algae.
<i>Aquatic/semi-aquatic wildlife:</i>	Species that depend primarily or solely on wetland habitats for breeding, nesting, feeding, or other critical life cycle components. Examples include waterfowl, shorebirds, bald eagle, osprey, muskrat, mink, river otter, beaver, and painted turtle.
<i>Bog:</i>	A peat-accumulating wetland that has no significant inflows or outflows and supports acidophilic mosses, particularly sphagnum (Mitch and Gosselink 1993).
<i>Common:</i>	An estimated 10-50% of wetlands in the same Major Montana Watershed Basin are similar in composition to the AA.
<i>Directly Disturbed:</i>	Wetland has been more than minimally directly disturbed by human activity; significant clearing, filling, conversion has occurred (e.g., farmed/tilled prairie pothole, wetland bisected by road construction).
<i>Emergent wetland class:</i>	Vegetated wetland characterized by erect, herbaceous hydrophytes (e.g., sedges, rushes, grasses, bulrush, cattail), excluding mosses and lichens.
<i>Encroached Upon:</i>	Human disturbance has encroached upon the wetland, but very minimal or no direct disturbance has resulted (e.g., pothole on agricultural land [converted prairie] that has been tilled to the wetland edge, wetland with road constructed along one edge).
<i>Fen:</i>	A peat-accumulating wetland that receives some drainage from surrounding mineral soil and usually supports marsh-like vegetation (Mitch and Gosselink 1993).
<i>Forested wetland class:</i>	Vegetated wetland characterized by woody vegetation that is 6m (20 ft) tall or taller.
<i>Functional unit:</i>	A figure derived by multiplying functional points for a given AA by its estimated acreage.



<i>Functional point:</i>	A numerical rating, ranging from 0 to 1, assigned to a particular function/value based on given criteria.
<i>Incidental use:</i>	AA receives chance, inconsequential use by a given species or habitat conditions or the known distribution of the species would indicate this level of use. This term implies that, while it may be conceivable that a given species may occur at an AA at a given point in time, the chance is remote and the use is not likely to be repeated.
<i>Little to No use:</i>	AA is regularly, infrequently, or sporadically used by extremely small numbers relative to local populations, or receives chance, inconsequential use in any numbers relative to local or transient populations.
<i>Moderate use:</i>	AA is regularly used in small numbers relative to local populations, or infrequently or sporadically used in any numbers relative to local or transient populations.
<i>Moss-lichen wetland class:</i>	Wetland where mosses or lichens cover substrates other than rock and where emergents, shrubs, or trees make up less than 30% of areal cover.
<i>Native fish species:</i>	Implies a species indigenous to Montana; not necessarily to a given drainage or water body.
<i>Non-aquatic wildlife:</i>	Species that may use wetland habitats, but are not primarily or solely dependent on them for breeding, nesting, feeding or other critical life cycle components. Examples include American robin, red-tailed hawk, common yellowthroat, striped skunk, white-tailed deer, white-footed deer mouse, and smooth green snake.
<i>Occasional use:</i>	AA is inconsistently, infrequently, sporadically used by a given species or habitat conditions and the known distribution of the species would indicate this level of use. Traditional breeding, nesting, denning, foraging, or seasonal habitat may occur in the general vicinity (e.g., watershed), but not in the AA.
<i>Open water:</i>	Any area of standing or flowing water without emergent (not including pioneer species), scrub-shrub, or forested vegetation (e.g., in most cases, a flooded wet meadow would not be considered to contain open water).
<i>Permanent/perennial:</i>	Surface water is present throughout the year except during years of extreme drought.
<i>Rare</i>	An estimated < 10% of wetlands in the same Major Montana Watershed Basin are similar in composition to the AA.



- Regular use:* AA is consistently, normally used by a given species or habitat conditions and the known distribution of the species would indicate this level of use. The presence of traditional breeding, nesting, denning, foraging, or seasonal habitat in the AA constitutes regular use, as does any occurrence of a T&E plant.
- Scrub-shrub class:* Vegetated wetland dominated by woody vegetation less than 6m (20 ft) tall. Species include shrubs, young trees, and stunted trees and shrubs.
- Seasonal/intermittent:* Surface water is present for extended periods, especially early in the growing season, or may persist throughout the growing season, but may be absent at the end of the growing season; or surface water does not flow continuously, as when water losses from evaporation or seepage exceed the available streamflow.
- Substantial use:* AA is regularly used in significant numbers relative to local or transient populations; includes regular seasonal use, such as migration stopovers and wintering.
- Temporary/ephemeral:* Surface water is present for brief periods during the growing season, but the water table is well below the surface most of the year; or surface water flows briefly in direct response to precipitation in the immediate vicinity and the channel is above the water table.
- Undisturbed:* Wetland is in virtually pristine condition; no significant sources of human disturbance occur within or immediately adjacent to the site; undisturbed habitat is contiguous with site (e.g., pothole on native prairie).



Appendix A

Montana Wetland Field Evaluation Form

Montana Wetland Field Evaluation Form (revised 7/1/96)

1. Project Name:		2. Project # and Control #:																		
3. Evaluation Date:		4. Evaluator(s):		5. Wetland/Site #(s):																
6. Wetland Location(s):																				
7. Evaluation is to assess functions and values of: Wetlands that may be affected by an MDT project <input type="checkbox"/> Mitigation wetlands: pre-construction <input type="checkbox"/> Mitigation Wetlands: post-construction <input type="checkbox"/> Other:			8. Estimated total wetland size (acres):																	
			9. Estimated acreage of assessment area (AA): (see detailed instructions on how to determine AA)																	
10. Classification of AA (HGM according to Brinson; system, subsystem, class, water regime, and special modifier according to Cowardin [1979])																				
HGM Class (Brinson)	System (Cowardin)	Subsystem (Cowardin)	Class (Cowardin)	Water Regime (Cowardin)	Modifier (Cowardin)	% of AA														
11. Circle estimated relative abundance (see definitions) of similarly classified sites within the same Major Montana Watershed Basin:																				
Rare		Common		Abundant																
12. Circle general condition of AA (see definitions): Undisturbed Ecroached Upon Directly Disturbed																				
13. Habitat Diversity																				
A). # of persistent vegetated classes (circle points) ≥3 = 5 points 2 = 3 points ≤1 = 1 point		B). Open water (see definition) in the AA is (circle points): present = 2 points absent = 1 point																		
Comments:		<table border="1" style="float: right; width: 150px;"> <tr> <th>Score</th> <th>Rating</th> <th>Functional Points</th> </tr> <tr> <td>10</td> <td>Excep</td> <td>NA</td> </tr> <tr> <td>5-6</td> <td>High</td> <td>NA</td> </tr> <tr> <td>2-3</td> <td>Mod</td> <td>NA</td> </tr> <tr> <td>1</td> <td>Low</td> <td>NA</td> </tr> </table>				Score	Rating	Functional Points	10	Excep	NA	5-6	High	NA	2-3	Mod	NA	1	Low	NA
Score	Rating	Functional Points																		
10	Excep	NA																		
5-6	High	NA																		
2-3	Mod	NA																		
1	Low	NA																		
		Score is (A) x (B) = _____																		

14. Brief descriptive summary of AA and surrounding land use and habitat:

15. Functions and Values Assessment

15.a) Habitat for Federally Listed, Proposed, or Candidate Threatened or Endangered Plants or Animals

AA is documented or suspected (circle D or S) to receive:

- ☐ D ☐ S Regular use or is designated critical habitat (list species):
☐ D ☐ S Occasional (infrequent, sporadic) use (list species):
☐ D ☐ S Incidental (chance, inconsequential) use (list species):
☐ D ☐ S No use

Source(s) for documented use (e.g., observation, records, etc.):

Comments:

Highest Level Use:	Rating	Functional Points
doc/reg	High	1
doc/occ	High	.9
sus/reg	Mod	.8
sus/occ	Mod	.7
doc/incid	Low	.5
sus/incid	Low	.3
none	None	0

15.b) Habitat for Plants or Animals Rated S1, S2, or S3 by the Montana Natural Heritage Program (Not including species listed in 15.a) above.)

AA is documented or suspected (circle D or S) to receive:

- ☐ D ☐ S Regular use (list species):
☐ D ☐ S Occasional (infrequent, sporadic) use (list species):
☐ D ☐ S Incidental (chance, inconsequential) use (list species):
☐ D ☐ S No use

Source(s) for documented use (e.g., observation, records, etc.):

Comments:

Highest Level Use:	Rating	Functional Points
doc/reg	High	1
doc/occ	High	.8
sus/reg	Mod	.7
sus/occ	Mod	.6
doc/incid	Low	.2
sus/incid	Low	.1
none	None	0

15.c) General Wildlife Habitat

AA is known or suspected (circle K or S) to receive (fill in blank) substantial (s), moderate (m), or little to no (l) use (see definitions for these terms) by the listed wildlife groups (see definitions for aquatic/semi-aquatic and non-aquatic wildlife)

- K S _____ Aquatic/semi-aquatic birds (list examples):
 K S _____ Non-aquatic birds (list examples):
 K S _____ Aquatic/semi-aquatic mammals (list examples):
 K S _____ Non-aquatic mammals (list examples):
 K S _____ Aquatic/semi-aquatic reptiles (list examples):
 K S _____ Non-aquatic reptiles (list examples):
 K S _____ Amphibians (list examples):
 K S _____ Invertebrates (list examples):

i. Assessed wildlife use (circle points):

- ≥ 3 s's or ≥ 5 m's + s's = 7 points
 1-2 s's or 2-4 m's = 3 points
 No s's and < 2 m's = 1 point

ii. Habitat diversity from #13 (circle points)

- High to exceptional rating = 3 points
 Moderate rating = 2 points
 Low rating = 1 point

Comments:

Score is (i) x (ii) = _____

Score	Rating	Functional Points
21	High	1
14	High	.9
7	High	.8
9	High	.7
6	Mod	.5
3	Mod	.4
2	Low	.3
1	Low	.1

15.d) General Fish Habitat (If AA does not contain or is not surficially connected to a fish-bearing stream or standing water body [e.g., pond or lake], circle NA here and proceed to next function)

i. AA is known or suspected (circle K or S) to support listed groups for portion of their life cycle (circle points)

- K S _____ Native fish = 5 points
 K S _____ Introduced game fish = 3 points
 K S _____ Introduced non-game fish = 2 points
 K S _____ No fish = 1 point

ii. Surface water in AA is (circle points):

- Permanent/perennial = 3 points
 Seasonal/intermittent = 2 points
 Temporary/ephemeral = 1 point

Comments:

Score is (i) x (ii) = _____

Score	Rating	Functional Points
15	High	1
10	High	.9
9	High	.8
6	Mod	.7
5	Mod	.6
3,4	Mod	.5
2	Low	.2
1	Low	.1

15.e) Flood Attenuation and Storage (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in the AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function. See 15.i) Dynamic Surface Water Storage for wetlands that flood, but not from in-channel or overbank flow.)

i. Estimated acreage of jurisdictional wetland in the AA that is subject to periodic flooding (circle points):

- Flooded wetlands ≥ 10 acres = 7 points
 10 acres > Flooded wetlands > 2 acres = 5 points
 Flooded wetlands ≤ 2 acres = 1 point

ii. Estimated % of flooded wetland area classified as forested (fo), scrub-shrub (ss), or both (circle points)

- > 75% fo/ss = 3 points
 25-75% fo/ss = 2 points
 < 25% fo/ss = 1 point

- iii. AA contains no outlet or restricted outlet = 1 point
 AA contains unrestricted outlet = 0 points

iv. Are residences, businesses, or other features which may be damaged by floods located within 0.5 miles downstream of AA? _____. If so, list here:

Comments:

Score is [(i) x (ii)] + (iii) = _____

Score	Rating	Functional Points
22	High	1
16, 21	High	.9
14, 15	High	.8
11	High	.7
8, 10	Mod	.6
6, 7	Mod	.5
5, 4	Mod	.4
3	Low	.3
2	Low	.2
1	Low	.1

15.f) Sediment/Nutrient/Toxicant Retention and Removal

Circle true (T) or false (F) for each of the following statements:

- i. T F AA receives direct discharge of managed water (municipal or road stormwater drainage, agricultural drainage, industrial/municipal wastewater) or accumulation of sediment/excess nutrients evident (deposits on vegetation, algal mats or other signs of eutrophication present) or immediate upstream land use has potential to deliver significant sediment/nutrient loads to AA.
 ii. T F Evidence of flooding or ponding occurs in AA.
 iii. T F AA contains restricted outlet or no outlet such that flow is slowed or detained.
 iv. T F Percent cover or emergent and/or dense woody vegetation in the AA exceeds 50%.

- (i) is true and at least two of (ii), (iii), or (iv) are true = High rating
 Rating is neither High or Low = Moderate rating
 (i) is false and at least two of (ii), (iii), or (iv) are false = Low rating

Comments:

Score	Rating	Functional Points
NA	High	1
NA	Mod	.5
NA	Low	.1

15.g) Sediment/Shoreline Stabilization (applies only if AA occurs on or within the banks of a river, stream, or other natural or manmade drainage, or on the shoreline of a standing water body which has a maximum depth exceeding 6.6 feet at low water (e.g., subject to wave action). If does not apply, circle NA here and proceed to next function.

i. Estimated % cover of rooted vegetated component in AA (circle points)

> 30% rooted vegetation = 3 points
10-30% rooted vegetation = 2 points
< 10% rooted vegetation = 1 point

ii. Water body adjacent to rooted vegetation is (circle points):

Permanent/perennial = 5 points
Seasonal/intermittent = 3 points
Temporary/ephemeral = 2 points

Comments:

Score is (i) x (ii) = _____

Score	Rating	Functional Points
15	High	1
9	High	.9
10	High	.8
6	Mod	.7
4	Mod	.5
5	Mod	.4
3	Low	.2
2	Low	.1

15.h) Production Export/Food Chain Support

i. Acreage of vegetated component in AA (circle points)

> 5 acres = 10 points
1-5 acres = 5 points
< 1 acre = 1 point

ii. Habitat diversity rating (from #13; circle points)

High - Exceptional = 3 points
Moderate = 2 points
Low = 1 point

iii. Outlet presence (circle points)

AA contains an outlet = 3 points
AA contains no outlet = 1 point

iv. Surface water in AA is (circle points):

Permanent/perennial = 3 points
Seasonal/intermittent = 2 points
Temporary/ephemeral or absent = 1 point

Comments:

Score is [(i) x (ii)] + [(iii) x (iv)] = _____

Score	Rating	Functional Points
39	High	1
21-36	High	.9
16-19	High	.8
10-14	Mod	.7
8-9	Mod	.6
7	Mod	.5
5,6	Low	.4
4	Low	.3
3	Low	.2
2	Low	.1

15.i) Groundwater Discharge/Recharge

i. Check the discharge indicators listed below that apply to the AA

___ Springs are known or observed in the AA. ___ Seeps are present at the wetland edge.
___ Vegetation is growing during dormant season or drought. ___ AA permanently flooded during drought periods.
___ Wetland occurs at the toe of a natural slope. ___ Wetland contains an outlet, but no inlet.
___ Other: _____

ii. Check the recharge indicators listed below that apply to the AA

___ Permeable substrate present without underlying impeding layer.
___ Wetland contains inlet, but no outlet.
___ Other: _____

AA is known discharge or recharge area or one or more indicators of discharge or recharge present = High rating
No discharge or recharge indicators present = Low rating
Available information pertaining to AA is inadequate to judge discharge/recharge potential = Unknown

Comments:

Score	Rating	Functional Points
NA	High	1
NA	Low	.1
NA	Unkn	NA

15.j) Uniqueness

i. Estimated relative abundance of similarly classified sites within the Major Watershed Basin (#11; circle points):

Rare = 3 points
Common = 2 points
Abundant = 1 point

ii. Replacement potential/habitat diversity (#12; circle points):

AA is/contains bog, fen, warm springs or mature (>80 years) forested wetland
AA does not contain above but habitat diversity is high - exceptional = 3 points
AA does not contain above and habitat diversity is low - moderate = 1 point

iii. Condition of AA (from #12; circle points):

Undisturbed = 3 points
Encroached Upon = 2 points
Directly Disturbed = 1 point

Comments:

Score is [(i) x (ii)] + (iii) = _____

Score	Rating	Functional Points
33	High	1
31,32	High	.9
22,23	High	.8
12-21	High	.7
10,11	Mod	.6
8,9	Mod	.5
5,6,7	Mod	.4
4	Low	.3
2,3	Low	.2
1	Low	.1

15.k) Recreation/Education Potential

i. Is the AA a known rec/ed site (circle)? Y N (If yes, rate as High and go to ii. If no, go to iii.)

ii. Check the categories listed below that apply to the AA:

___ education/scientific study
___ consumptive recreation
___ non-consumptive recreation
___ others: _____

iii. Based on the location, diversity, size, and other attributes of the site, is there strong potential for recreational/educational use (circle)? Y N (If yes, go to ii, then proceed to iv. If no, rate as Low [1].)

iv. Condition of AA (from #12; circle points):

Undisturbed = 3 points
Encroached Upon = 2 points
Directly Disturbed = 1 point

v. Ownership of AA (circle points):

Public = 2 points
Private = 1 point

Comments:

Score is (iv) x (v) = _____

Score	Rating	Functional Points
6	High	1
3	Mod	.7
4	Mod	.5
2	Low	.2
1	Low	.1

15.1) Dynamic Surface Water Storage (applies to wetlands that do not flood from overbank or in-channel flow, but flood via ppt., upland surface flow, or groundwater flow. If no jurisdictional wetlands in the AA are subject to flooding, circle NA here and proceed with the evaluation.)

i. Estimated acreage of jurisdictional wetland in the AA

that is subject to periodic flooding (circle points):

Flooded wetlands ≥ 5 acres = 3 points

5 acres > Flooded wetlands > 1 acre = 2 points

Flooded wetlands < 1 acre = .5 point

Comments:

ii. Estimated flood

frequency (circle points)

Wetland floods $\geq 5/10$ years = 2 points

Wetland floods < 5/10 years = 1 point

Score	Rating	Functional Points
6	High	1
4	High	.8
2,3	Mod	.5
1	Low	.3
.5	Low	.1

Score is (i) x (ii) = _____

Function & Value Summary and Overall Rating

Function & Value Parameters	Rating	Actual functional points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed/Candidate T&E Species Habitat			1	
B. MNHP Species Habitat			1	
C. General Wildlife Habitat			1	
D. General Fish/Aquatic Habitat				
E. Flood Attenuation and Storage				
F. Sediment/Nutrient/Toxicant Removal			1	
G. Sediment/Shoreline Stabilization				
H. Production Export/Food Chain Support			1	
I. Groundwater Discharge/Recharge			1	
J. Uniqueness			1	
K. Recreation/Education Potential			1	
L. Dynamic Surface Water Storage				
Totals				

Overall AA Rating (Circle appropriate category based on the criteria outlined below):

I II III IV

Category I Wetland - Must satisfy one of the following criteria:

- o Score of .9 or 1 functional point for Listed/Proposed/Candidate Threatened or Endangered Species; or
- o Score of .9 or 1 functional points for Uniqueness or "High" rating for Uniqueness and Condition (#12) is "Undisturbed"; or
- o Score of 1 functional point for Flood Attenuation and Storage and answer to Question 14.E.3 is "yes"; or
- o Total actual functional points > 80% (round to nearest tenth) of total possible functional points.

Category II Wetland - Does not satisfy criteria for Category I and:

- o Score of 1 functional point for Species Rated S1, S2, or S3 by the Montana Natural Heritage Program; or
- o Score of 1 functional point for General Wildlife Habitat; or
- o "High" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or
- o "High" rating for Uniqueness or
- o Total actual functional points > 65% (round to nearest tenth) of total possible functional points.

Category III Wetland - Does not satisfy criteria for Category I, Category II, or Category IV.

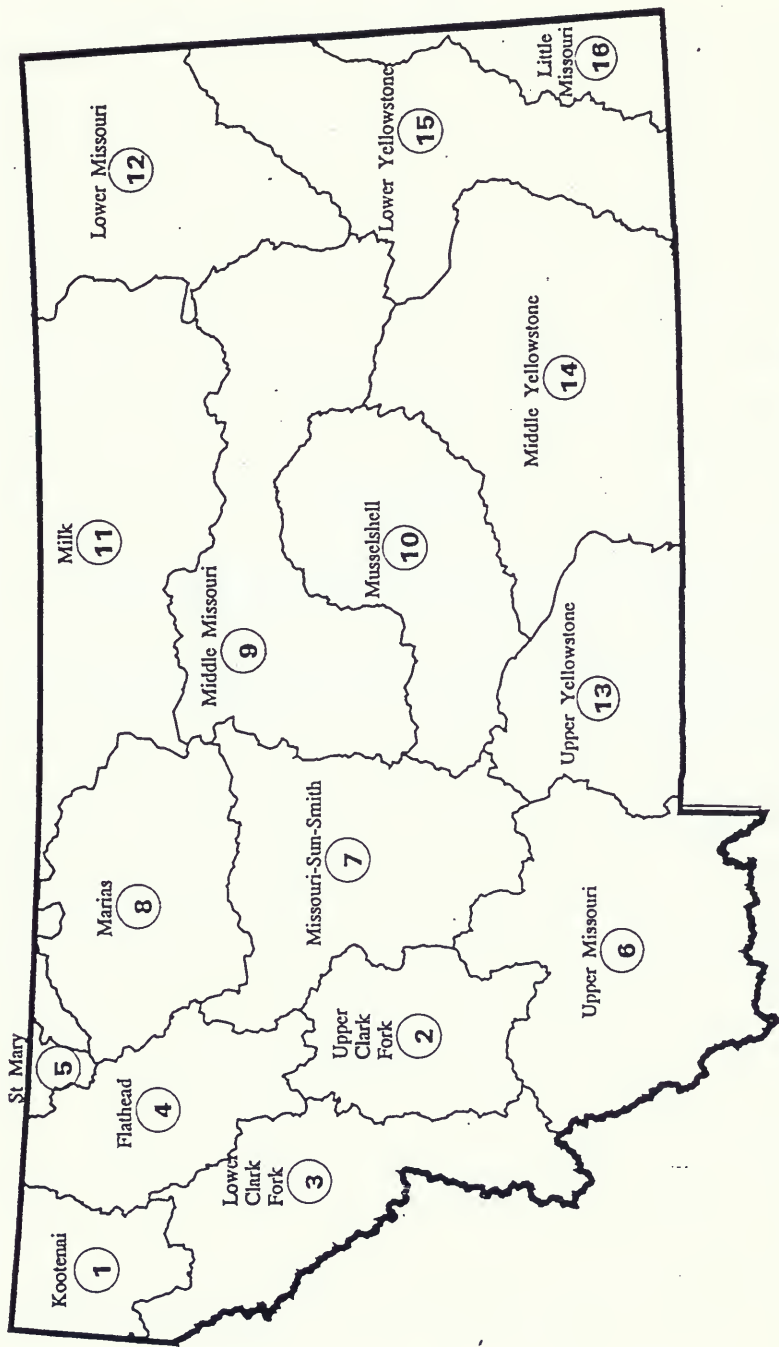
Category IV Wetland - Does not satisfy criteria for Category I, Category II, or Category III and:

- o "Low" rating for Uniqueness; and
- o "Low" rating for Production Export/Food Chain Support; and
- o Total actual functional points < 30% (round to nearest tenth) of total possible functional points.



Appendix B

Map of Major Montana Watershed Basins



Major Montana Watershed Basins (from DHES)



Appendix C

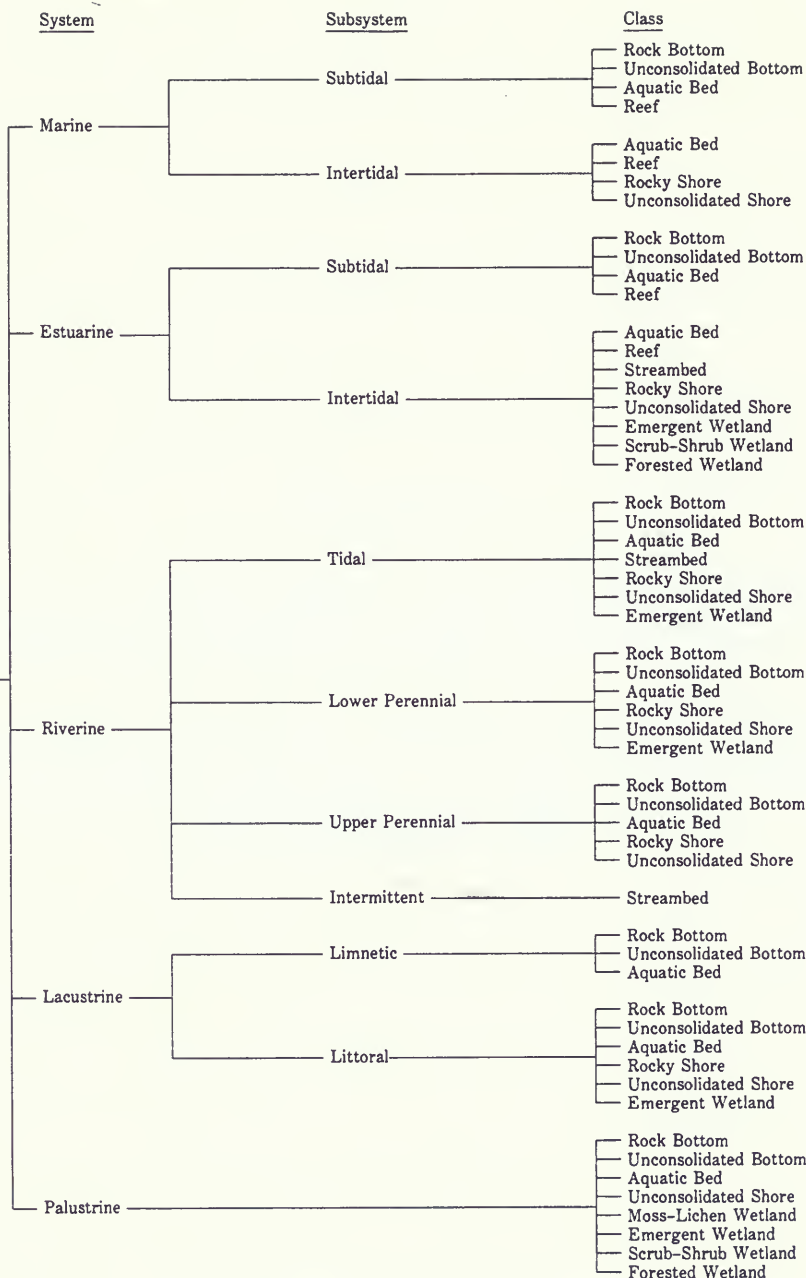
Key to HGM Classes (Smith et al. 1995)

Cowardin et al. (1979) Classification Hierarchy

Key to Hydrogeomorphic Wetland Classes and Regional Subclasses *

1. Wetland is under the influence of tides 2
 1. Wetland is not under the influence of tides 4
 2. Salinity greater than 30 ppt Tidal Fringe (Euhaline)
 2. Salinity less than 30 ppt 3
 3. Salinity 5-30 ppt Tidal Fringe (Mixohaline)
 3. Salinity less than 5 ppt Riverine (Tidal)
 4. Wetland is topographically flat and has precipitation as a dominant source of water 5
 4. Wetland is not topographically flat and does not have precipitation as a dominant source of water 6
 5. Wetland has a mineral soil Mineral Soil Flats
 5. Wetland has an organic soil Organic Soil Flats
 6. Wetland is associated with a stream channel, floodplain, or terrace 7
 6. Wetland is associated with a topographic depression or on a topographic slope or flat 9
 7. Stream is intermittent or ephemeral Riverine (Nonperennial)
 7. Stream is perennial 8
 8. Stream is 1st or 2nd order Riverine (Upper perennial)
 8. Stream is 3rd order or higher Riverine (Lower perennial)
 9. Wetland located in a natural or artificial (dammed) topographic depression 10
 9. Wetland located on a topographic slope 13
 10. Topographic depression has permanent water >2 meters deep, and wetland is restricted to the margin of the depression Lacustrine Fringe
 10. Topographic depression does not contain permanent water >2 meters deep 11
 11. Topographic depression closed without discernable surface water inlets, outlets, or other connections Depression (Closed)
 11. Topographic depression open with discernable surface water inlets, outlets, or other connections 12
 12. Primary source of water is ground water Depression (Open, Ground Water)
 12. Primary source of water is precipitation, overland flow, or interflow Depression (Open, Surface Water)
 13. Primary source of water is ground water Slope
 13. Primary source of water is precipitation Organic Soil Flats
- * Hydrogeomorphic classes are followed by regional subclass in parenthesis

WETLANDS AND DEEPWATER HABITATS



Classification hierarchy of wetlands and deepwater habitats, showing Systems, Subsystems, and Classes. The Palustrine System does not include deepwater habitats.



Appendix D

**Federal Proposed, Candidate, and Listed Threatened and
Endangered Species in Montana (USFWS 1995)**

**Species Designated S1, S2, or S3 by the Montana Natural
Heritage Program That May be Associated with Wetland
Habitats (MNHP 1996)**

FEDERALLY-LISTED THREATENED, ENDANGERED, PROPOSED,
AND CATEGORY ONE CANDIDATE SPECIES
THAT MAY BE PRESENT IN MONTANA COUNTIES

<u>County</u>	<u>Listed Species</u>
Beaverhead	endangered bald eagle (<u>Haliaeetus leucocephalus</u>) endangered gray wolf (<u>Canis lupus</u>) threatened grizzly bear (<u>Ursus arctos horribilis</u>) endangered peregrine falcon (<u>Falco peregrinus</u>) endangered whooping crane (<u>Grus americana</u>)
Big Horn	bald eagle endangered black-footed ferret (<u>Mustela nigripes</u>) gray wolf peregrine falcon
Blaine	bald eagle black-footed ferret endangered pallid sturgeon (<u>Scaphirhynchus albus</u>) peregrine falcon
Broadwater	bald eagle gray wolf peregrine falcon
Carbon	bald eagle black-footed ferret gray wolf grizzly bear peregrine falcon whooping crane
Carter	bald eagle black-footed ferret peregrine falcon
Cascade	bald eagle gray wolf peregrine falcon
Chouteau	bald eagle black-footed ferret gray wolf pallid sturgeon peregrine falcon
Custer	bald eagle black-footed ferret pallid sturgeon peregrine falcon

<u>County</u>	<u>Listed Species</u>
Daniels	bald eagle peregrine falcon whooping crane
Dawson	bald eagle black-footed ferret pallid sturgeon peregrine falcon whooping crane
Deer Lodge	bald eagle gray wolf peregrine falcon
Fallon	bald eagle black-footed ferret peregrine falcon
Fergus	bald eagle black-footed ferret gray wolf pallid sturgeon peregrine falcon
Flathead	bald eagle gray wolf grizzly bear peregrine falcon
Gallatin	bald eagle gray wolf grizzly bear peregrine falcon
Garfield	bald eagle black-footed ferret gray wolf endangered least tern (<u>Sterna antillarum</u>) pallid sturgeon peregrine falcon threatened piping plover (<u>Charadrius melodus</u>)
Glacier	bald eagle gray wolf grizzly bear peregrine falcon piping plover

<u>County</u>	<u>Listed Species</u>
Golden Valley	bald eagle black-footed ferret peregrine falcon
Granite	bald eagle gray wolf peregrine falcon
Hill	bald eagle gray wolf peregrine falcon
Jefferson	bald eagle gray wolf peregrine falcon threatened Ute ladies'-tresses (<u>Spiranthes diluvialis</u>)
Judith Basin	bald eagle gray wolf peregrine falcon
Lake	bald eagle gray wolf grizzly bear peregrine falcon threatened water howellia (<u>Howellia aquatilis</u>)
Lewis and Clark	bald eagle gray wolf grizzly bear peregrine falcon
Liberty	bald eagle peregrine falcon
Lincoln	bald eagle gray wolf grizzly bear peregrine falcon endangered white sturgeon (<u>Acipenser transmontanus</u>)
Madison	bald eagle gray wolf grizzly bear peregrine falcon whooping crane

<u>County</u>	<u>Listed Species</u>
McCone	bald eagle black-footed ferret least tern pallid sturgeon peregrine falcon piping plover
Meagher	bald eagle gray wolf peregrine falcon
Mineral	bald eagle gray wolf grizzly bear peregrine falcon
Missoula	bald eagle gray wolf grizzly bear peregrine falcon water howellia
Musselshell	bald eagle black-footed ferret peregrine falcon
Park	bald eagle gray wolf grizzly bear peregrine falcon
Petroleum	bald eagle black-footed ferret gray wolf pallid sturgeon peregrine falcon
Phillips	bald eagle black-footed ferret pallid sturgeon peregrine falcon piping plover
Pondera	bald eagle gray wolf grizzly bear peregrine falcon piping plover



<u>County</u>	<u>Listed Species</u>
Powder River	bald eagle black-footed ferret peregrine falcon
Powell	bald eagle gray wolf grizzly bear peregrine falcon
Prairie	bald eagle black-footed ferret least tern pallid sturgeon peregrine falcon
Ravalli	bald eagle gray wolf grizzly bear peregrine falcon whooping crane
Richland	bald eagle least tern pallid sturgeon peregrine falcon piping plover whooping crane
Roosevelt	bald eagle least tern pallid sturgeon peregrine falcon piping plover whooping crane
Rosebud	bald eagle black-footed ferret pallid sturgeon peregrine falcon
Sanders	bald eagle gray wolf grizzly bear peregrine falcon
Sheridan	bald eagle peregrine falcon piping plover whooping crane

<u>County</u>	<u>Listed Species</u>
Silver Bow	bald eagle gray wolf peregrine falcon
Stillwater	bald eagle grizzly bear peregrine falcon
Sweet Grass	bald eagle grizzly bear peregrine falcon whooping crane
Teton	bald eagle gray wolf grizzly bear peregrine falcon
Toole	bald eagle gray wolf peregrine falcon
Treasure	bald eagle peregrine falcon
Valley	bald eagle black-footed ferret least tern pallid sturgeon peregrine falcon piping plover
Wheatland	bald eagle peregrine falcon
Wibaux	bald eagle peregrine falcon
Yellowstone	bald eagle black-footed ferret peregrine falcon

PROPOSED SPECIES

None at this time.

CATEGORY ONE CANDIDATE SPECIES

<u>County</u>	<u>Category One Candidate Species</u>
Beaverhead	fluvial Arctic grayling (<u>Thymallus arcticus</u>) mountain plover (<u>Charadrius montanus</u>)
Blaine	mountain plover sicklefin chub (<u>Macrhybopsis meeki</u>) sturgeon chub (<u>Macrhybopsis gelida</u>)
Broadwater	mountain plover
Custer	mountain plover sturgeon chub
Chouteau	sturgeon chub
Dawson	sturgeon chub
Deer Lodge	bull trout (<u>Salvelinus confluentus</u>)
Fallon	mountain plover
Fergus	sicklefin chub sturgeon chub
Flathead	bull trout
Gallatin	fluvial Arctic grayling warm spring zaitzevian riffle beetle (<u>Zaitzevia thermae</u>)
Garfield	mountain plover
Glacier	bull trout
Golden Valley	mountain plover
Granite	bull trout
Hill	mountain plover
Jefferson	mountain plover
Lake	bull trout
Lewis and Clark	bull trout
Liberty	mountain plover

<u>County</u>	<u>Category One Candidate Species</u>
Lincoln	bull trout
Madison	fluvial Arctic grayling
Mineral	bull trout
Missoula	bull trout
Petroleum	mountain plover
Phillips	mountain plover sicklefin chub sturgeon chub
Powder River	sturgeon chub
Powell	bull trout
Prairie	mountain plover sturgeon chub
Ravalli	bull trout
Richland	sturgeon chub
Roosevelt	sturgeon chub
Rosebud	mountain plover
Sanders	bull trout
Silver Bow	bull trout
Valley	mountain plover
Wheatland	mountain plover
Wibaux	sturgeon chub

Notes:

- In addition to the counties listed in which known nests occur, bald eagles and peregrine falcons may also occur in areas of Montana as spring or fall migrants, non-breeding summer residents, or winter residents.

- Black-footed ferrets were released into the wild in southern Phillips County during the fall of 1994. These are the only wild black-footed ferrets known to occur in Montana and they have been designated a nonessential, experimental population, which increases the flexibility with which these animals can be managed. Although none are known at this time, other black-footed ferrets may potentially be found in Montana in conjunction with prairie dog (*Cynomys* spp.) colonies in the other counties indicated on this list.

- Potential gray wolf distribution has been represented in this list by indicating counties for which the Service has received wolf observation reports from 1987 through 1993. Gray wolves were reintroduced into Yellowstone National Park and central Idaho during January 1995. These have been designated nonessential experimental populations. The rules governing wolf management differ for wolves inside and outside of the designated Nonessential Experimental Population Areas.

- Distribution of category 1 candidate species is based on the best and most current information available, but data may be lacking.

- Contact the U.S. Fish and Wildlife Service's Montana Field Office at 100 N. Park Ave., Suite 320, Helena, Montana 59601, telephone number (406)449-5225, if you require other information regarding these species.

revised 12/95

SDJ



MONTANA NATURAL HERITAGE PROGRAM

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Montana Natural Heritage Program (MTNHP) Notes on Draft List of Wetland-related Species of Special Concern

(Compiled as Requested by Jeff Berglund, Morrison-Maierle)

The attached list of wetland-related species of special concern is preliminary, and is not intended to be a definitive list of Montana's wetland species. Information here reflects occupied habitat and not landscape setting, and some "non-wetland" species are, in fact, restricted to habitat adjoining streambanks.

Columns included in this list are:

Species name

Global and state ranks

Watershed (east or west of Continental Divide): general information only, based on current (and incomplete) location records for plants and general distribution information for animals.

MTNHP Tracking: a 'Y' in this column indicates the taxon is considered to be of special concern and is being actively tracked by MTNHP. 'W' indicates a "watch" species which MTNHP is monitoring, but has not designated to be of special concern.

MTNHP is in the process of incorporating into their data bases wetland indicator information from the *National List of Plant Species that Occur in Wetlands* (USFWS). Once this task is completed, more refined wetland plant species lists can be compiled for Montana.

If you have questions or comments, please contact MTNHP.

Montana Natural Heritage Program
Draft List of Wetland-related Plant Species of Special Concern

Name	G Rank	S Rank	Watershed		MTNHP Tracking
			West	East	
<i>Adoxa moschatellina</i>	G5	S1	X	X	Y
<i>Agoseris lackschewitzii</i>	G3	S2S3	X	X	Y
<i>Agrostis borealis</i>	G5	S2	X		Y
<i>Amaranthus californicus</i>	G4	SA			W
<i>Amerorchis rotundifolia</i>	G5	S2S3	X	X	Y
<i>Aquilegia formosa</i>	G5	S1		X	Y
<i>Asclepias incarnata</i>	G5	S1		X	Y
<i>Aster frondosus</i>	G4	S1	X		Y
<i>Boissduvalia densiflora</i>	G5	SH	X		Y
<i>Botrychium ascendens</i>	G3?	S1	X	X	Y
<i>Botrychium crenulatum</i>	G3?	S2	X		Y
<i>Botrychium hesperium</i>	G3	S1	X	X	Y
<i>Botrychium minganense</i>	G4	S2S3	X	X	Y
<i>Botrychium montanum</i>	G3	S2	X		Y
<i>Botrychium paradoxum</i>	G2	S1	X	X	Y
<i>Brasenia schreberi</i>	G5	S2	X		Y
<i>Cardamine oligosperma</i> var <i>kamtschatica</i>	G5T?	S1	X		Y
<i>Cardamine rupicola</i>	G3	S3			W
<i>Carex amplifolia</i>	G4	S1	X		Y
<i>Carex brunnescens</i>	G5	SU			W
<i>Carex chordorrhiza</i>	G5	S1	X		Y
<i>Carex comosa</i>	G5	S1	X		Y
<i>Carex crawei</i>	G5	S2	X	X	Y
<i>Carex jonesii</i>	G5	SU			W
<i>Carex lacustris</i>	G5	SU			W
<i>Carex lenticularis</i> var <i>dolia</i>	G5T2Q	S1	X	X	Y
<i>Carex livida</i>	G5	S2	X	X	Y
<i>Carex luzulina</i> var <i>atropurpurea</i>	G5T3	SU			W
<i>Carex maritima</i> var <i>incurviformis</i>	G3G5T?	S1	X	X	Y
<i>Carex microglochin</i>	G5?	SU			W
<i>Carex microptera</i> var <i>crassinervia</i>	G5?T3T4	SU			W
<i>Carex multicostata</i>	G5	S1		X	Y
<i>Carex neurophora</i>	G4	S2	X	X	Y
<i>Carex norvegica</i> ssp <i>stevenii</i>	G5T?	SU			Y
<i>Carex parryana</i> ssp <i>idaho</i>	G2Q	S2		X	Y
<i>Carex paupercula</i>	G5	S2S3	X	X	Y
<i>Carex prairea</i>	G5?	S1			Y
<i>Carex rostrata</i>	G5	S1	X		Y
<i>Carex scoparia</i>	G5	S1	X		Y
<i>Carex sychnocephala</i>	G4	S1	X	X	Y
<i>Carex tenuiflora</i>	G5	S1	X		Y
<i>Castilleja exilis</i>	G5	S1	X	X	Y
<i>Castilleja gracillima</i>	G3G4	S1		X	Y
<i>Centaurium exaltatum</i>	G5	SH			Y
<i>Centunculus minimus</i>	G5	S1	X	X	Y
<i>Chrysosplenium tetrandrum</i>	G5	S2S3	X		Y
<i>Claytonia cordifolia</i>	G5	SU			W
<i>Cyperus acuminatus</i>	G5	S1	X		Y
<i>Cyperus erythrorhizos</i>	G5	SU	X		Y
<i>Cyperus rivularis</i>	G5	S1	X		Y
<i>Cypripedium calceolus</i> var <i>parviflorum</i>	G5	S2S3	X	X	Y
<i>Cypripedium passerinum</i>	G4G5	S2	X	X	Y
<i>Cystopteris montana</i>	G5	SH		X	Y
<i>Downingia laeta</i>	G5	S1		X	Y
<i>Drosera anglica</i>	G5	S2	X	X	Y
<i>Drosera linearis</i>	G4	S1	X		Y
<i>Dryopteris cristata</i>	G5	S2	X		Y

Montana Natural Heritage Program
Draft List of Wetland-related Plant Species of Special Concern

Name	G Rank	S Rank	Watershed		MTNHP Tracking
			West	East	
<i>Elatine americana</i>	G4	SU	X	X	W
<i>Elatine brachysperma</i>	G5	SU	X	X	Y
<i>Elatine californica</i>	G5	SU	X	X	Y
<i>Eleocharis bella</i>	G5	SU			W
<i>Eleocharis flavescens</i>	G5	SU			W
<i>Eleocharis rostellata</i>	G5	S2	X	X	Y
<i>Eleocharis xyridiformis</i>	G4	S1		X	Y
<i>Elodea longivaginata</i>	G4G5	S1		X	Y
<i>Epipactis gigantea</i>	G4	S2	X	X	Y
<i>Erigeron coulteri</i>	G5	SU			W
<i>Eriophorum callitrix</i>	G5	S1		X	Y
<i>Eriophorum gracile</i>	G5	SU	X		Y
<i>Eriophorum scheuchzeri</i>	G5	SU			W
<i>Eriophorum viridicarinatum</i>	G4	S2S3	X	X	Y
<i>Euphrasia arctica</i> var <i>disjuncta</i>	G5	S1	X	X	Y
<i>Eustoma grandiflorum</i>	G5	S1			Y
<i>Euthamia graminifolia</i>	G5	SU			W
<i>Floerkea proserpinacoides</i>	G5	SU			W
<i>Galium cymosum</i>	G7	SU			W
<i>Gentiana aquatica</i>	G4	S3			W
<i>Gentiana glauca</i>	G4G5	S1	X		Y
<i>Gentiana prostrata</i>	G5	S2	X	X	Y
<i>Gentianella tenella</i>	G4G5	S2		X	Y
<i>Gentianopsis macounii</i>	G5	S1		X	Y
<i>Gentianopsis simplex</i>	G4	S1	X	X	Y
<i>Gratiola ebracteata</i>	G4	S1		X	Y
<i>Gymnosteris parvula</i>	G4	SH		X	Y
<i>Halenia deflexa</i> ssp <i>deflexa</i>	G5TU	S2	X		Y
<i>Hemicarpha drummondii</i>	G4G5	SU		X	Y
<i>Heteranthera dubia</i>	G5	S1	X		Y
<i>Howellia aquatilis</i>	G2	S2	X		Y
<i>Huperzia haleakalae</i>	G47	SU			W
<i>Impatiens aurella</i>	G47	SU			W
<i>Impatiens ecalcarata</i>	G3G4	S3			W
<i>Isoetes lacustris</i>	G4G5	SU			W
<i>Isoetes nuttallii</i>	G47	SU			W
<i>Juncus acuminatus</i>	G5	S1		X	Y
<i>Juncus covillei</i> var <i>covillei</i>	G4G5T5	SU	X		Y
<i>Juncus covillei</i> var <i>obtusatus</i>	G4G5T4	SU			Y
<i>Juncus hallii</i>	G4G5	S2	X	X	Y
<i>Juncus interior</i>	G4G5	SU			W
<i>Juncus nevadensis</i>	G5	SU			W
<i>Juncus triglumis</i> var <i>albescens</i>	G5T5	S2	X	X	Y
<i>Juncus triglumis</i> var <i>triglumis</i>	G5T5	SU		X	Y
<i>Juncus tweedyi</i>	G3	SU			W
<i>Kalmia occidentalis</i>	G5	S1	X		Y
<i>Kalmia occidentalis</i>	G5	S1	X		Y
<i>Kobresia macrocarpa</i>	G5	S1		X	Y
<i>Kobresia simpliciuscula</i>	G5	S2	X	X	Y
<i>Lemna minuta</i>	G4	SU			W
<i>Lemna valdiviana</i>	G5	SU			W
<i>Lilaea scilloides</i>	G4	S1	X		Y
<i>Liparis loeselii</i>	G5	S1	X		Y
<i>Lomatogonium rotatum</i>	G5	S1		X	Y
<i>Lycopodium inundatum</i>	G5	S1	X		Y
<i>Mertensia bella</i>	G4	S1	X		Y
<i>Mimulus glabratus</i> var <i>fremontii</i>	G5TUQ	SU			Y
<i>Mimulus primuloides</i>	G4	S2	X	X	Y

Montana Natural Heritage Program
Draft List of Wetland-related Plant Species of Special Concern

Name	G Rank	S Rank	Watershed		MTNHP Tracking
			West	East	
<i>Nymphaea tetragona</i>	G5	S1	X		Y
<i>Ophioglossum pusillum</i>	G5	S2	X		Y
<i>Petasites frigidus</i> var <i>nivalis</i>	G5T7	S1	X		Y
<i>Phippsia algida</i>	G5	S2		X	Y
<i>Plagiobothrys leptocladius</i>	G4	S1		X	Y
<i>Polygonum polygaloides</i>	G4G5	S2	X	X	Y
<i>Potamogeton obtusifolius</i>	G5	S1	X	X	Y
<i>Potentilla plattensis</i>	G4	S1		X	Y
<i>Primula alcalina</i>	G1	SU		X	Y
<i>Primula incana</i>	G4	S2		X	Y
<i>Psilocarphus brevissimus</i>	G5	S1	X	X	Y
<i>Ranunculus cardiophyllus</i>	G4	S2		X	Y
<i>Ranunculus hyperboreus</i>	G5	S1		X	Y
<i>Ranunculus jovis</i>	G4	S2		X	Y
<i>Ranunculus orthorhynchus</i> var <i>platyphyllus</i>	G5T5	S1	X		Y
<i>Ranunculus pedatifidus</i>	G5	S1	X	X	Y
<i>Ranunculus verecundus</i>	G5	S2	X	X	Y
<i>Ribes triste</i>	G5	S1	X	X	Y
<i>Rorippa calycina</i>	G3	S1		X	Y
<i>Rotula ramosior</i>	G5	S1	X		Y
<i>Rubus arcticus</i>	G5	SU			W
<i>Sagina nivalis</i>	G5	S1		X	Y
<i>Salix barrattiana</i>	G5	S1		X	Y
<i>Salix cascadiensis</i>	G4G5	S1	X	X	Y
<i>Salix serissima</i>	G4	S1		X	Y
<i>Salix wolfii</i> var <i>wolfii</i>	G5T4	S2	X	X	Y
<i>Saxifraga hirculus</i>	G5	S1		X	Y
<i>Scheuchzeria palustris</i>	G5	S2	X		Y
<i>Scirpus cespitosus</i>	G5	S2	X	X	Y
<i>Scirpus heterochaetus</i>	G5	S1		X	Y
<i>Scirpus hudsonianus</i>	G5	S1	X	X	Y
<i>Scirpus pendulus</i>	G5	SU	X		Y
<i>Scirpus pumilus</i> ssp <i>rollandii</i>	G2G3G	S1		X	Y
<i>Scirpus subterminalis</i>	G4G5	S2	X		Y
<i>Selaginella selaginoides</i>	G5	S1	X	X	Y
<i>Senecio amplexans</i> var <i>holmii</i>	G4T7	S1		X	Y
<i>Senecio debilis</i>	G3G4	S3			W
<i>Senecio hyperborealis</i>	G5	SU			W
<i>Sidalcea oregana</i>	G5	S1	X	X	Y
<i>Sphenopholis intermedia</i>	G5	SH			Y
<i>Spiraea x pyramidata</i>	HY8	S2	X		Y
<i>Spiranthes diluvialis</i>	G2	S1		X	Y
<i>Stellaria crassifolia</i>	G4	S1	X	X	Y
<i>Stellaria simcoeii</i>	G4G	SU			W
<i>Suckleya suckleyana</i>	G5	SU		X	Y
<i>Sullivantia hapemanii</i>	G3	S1		X	Y
<i>Synthyris missurica</i>	G4	S1			W
<i>Taraxacum eriophorum</i>	G4	S1	X	X	Y
<i>Thalictrum alpinum</i>	G5	S1	X	X	Y
<i>Thelypodium paniculatum</i>	G3G4	SH		X	Y
<i>Thelypodium sagittatum</i> ssp <i>sagittatum</i>	G4T7	S2	X	X	Y
<i>Thelypteris phegopteris</i>	G5	S1	X	X	Y
<i>Thlaspi parviflorum</i>	G3	S2	X	X	Y
<i>Tillaea aquatica</i>	G5	SU			W
<i>Tofieldia pusilla</i>	G5	S2	X	X	Y
<i>Tridescantia bracteata</i>	G5	SU			W
<i>Trifolium cyathiferum</i>	G4	S1	X		Y
<i>Trifolium eriocephalum</i> var <i>piperi</i>	G4T3	S1	X		Y

Montana Natural Heritage Program
Draft List of Wetland-related Plant Species of Special Concern

Name	G Rank	S Rank	Watershed		MTNHP Tracking
			West	East	
<i>Trisetum x orthochaetum</i>	HYB	S2	X	X	Y
<i>Utricularia intermedia</i>	G5	S1	X		Y
<i>Veratrum californicum</i>	G5	S1	X		Y
<i>Vernonia fasciculata</i> ssp <i>corymbosa</i>	G5T?	SU			Y
<i>Viola palustris</i>	G5	SU			W
<i>Viola renifolia</i>	G5	S2	X	X	Y
<i>Wolffia columbiana</i>	G5	S2	X		Y

Montana Natural Heritage Program
Draft List of Wetland-related Animal Species of Special Concern

Name	G Rank	S Rank	Watershed		MTNHP Tracking
Fish					
Shorthead Sculpin	G5	S3	X		Y
Torrent Sculpin	G5	S2	X		Y
Spoonhead Sculpin	G5	S1		X	Y
White Sturgeon (kootenai River Pop.)	G4T1Q	S1T1Q	X		Y
Pallid Sturgeon	G1G2	S1		X	Y
Paddlefish	G4	S3		X	Y
Shortnose Gar	G5	S1		X	Y
Yellowstone Cutthroat Trout	G4T2	S2	X	X	Y
Westslope Cutthroat Trout	G4T3	S3			Y
Interior Redband Trout	G5T7	S2	X		Y
Bull Trout	G3	S3	X	X	Y
Montana Arctic Grayling	G5T2	S1	X	X	Y
Western Silvery Minnow	G5	S4S5		X	W
Plains Minnow	G5	S4S5		X	W
Northern Redbelly X Finescale Dace	HYB	S3		X	Y
Sturgeon Chub	G2	S2		X	Y
Sicklefin Chub	G3	S1		X	Y
Pearl Dace	G5	S2		X	Y
Flathead Chub	G5	S5		X	W
Blue Sucker	G3	S3?		X	Y
Trout-perch	G5	S1		X	Y
Amphibians					
Coeur d'Alene Salamander	G3Q	S2	X		Y
Tailed Frog	G3G4	S4	X	X	W
Idaho Giant Salamander	G4	SR	X		Y
Western Toad	G4	S3S4	X	X	W
Great Plains Toad	G5	S3S4		X	W
Canadian Toad	G4	S1		X	Y
Northern Leopard Frog	G5	S3S4	X	X	Y
Wood Frog	G5	SR			Y
Reptiles					
Spiny Softshell	G5	S3		X	Y
Snapping Turtle	G5	S3	X	X	Y
Birds					
Common Loon	G5	S3B, SZN	X	X	Y
Clark's Grebe	G5	S2S4B, SZN			Y
American White Pelican	G3	S2B, SZN	X	X	Y
Great Blue Heron	G5	S4B, SZN	X	X	W
Black-crowned Night-heron	G5	S2S3B, SZN	X	X	Y
White-faced Ibis	G5	S1B, SZN	X	X	Y
Trumpeter Swan	G4	S2B, SZN	X	X	Y
Harlequin Duck	G4	S2B, SZN	X	X	Y
Bald Eagle	G4	S3B, S3N	X	X	Y
Peregrine Falcon	G4	S1S2B, SZN	X	X	Y
Yellow Rail	G4	S1B, SZN		X	Y
Whooping Crane	G1	SZN		X	Y
Piping Plover	G3	S2B, SZN	X	X	Y
Black-necked Stilt	G5	S2B, SZN	X	X	Y
Franklin's Gull	G5	S3B, SZN	X	X	Y
Caspian Tern	G5	S2B, SZN	X	X	Y
Common Tern	G5	S3B, SZN	X	X	Y
Forster's Tern	G5	S2B, SZN	X	X	Y
Interior Least Tern	G4T2Q	S1B, SZN		X	Y
Black Tern	G4	S3B, SZN	X	X	Y
Eastern Screech-owl	G5	S3S4		X	W
Western Screech-owl	G5	S3S4	X	X	W

Montana Natural Heritage Program
Draft List of Wetland-related Animal Species of Special Concern

Name	G Rank	S Rank	Watershed		MTNHP Tracking
			West	East	
Great Gray Owl	G5	S3	X	X	Y
Black Swift	G4	S3B, SZN	X	X	Y
Alder Flycatcher	G5	S1B, SZN		X	Y
Le Conte's Sparrow	G47	S1S2B, SZN	X	X	Y

Mammals

Yuma Myotis	G5	S3	X	X	W
Fringed Myotis	G5	S3	X	X	Y
Northern Myotis	G4	S2		X	Y
Spotted Bat	G4	S1		X	Y
Townsend's Big-eared Bat	G4	S2S3	X	X	Y
Pallid Bat	G5	S1		X	Y
Northern Bog Lemming	G4	S2	X	X	Y
Fisher	G5	S2	X	X	Y
Gray Wolf	G4	S1	X	X	Y
Grizzly Bear	G4T3	S1S2	X	X	Y

